

NEW SPECIES OF VERNONIEAE (ASTERACEAE). IV.

THREE ADDITIONS TO *VERNONIA* FROM ECUADOR AND PERU.

Harold Robinson
Department of Botany
Smithsonian Institution, Washington, D.C., 20560.

Continuing efforts to determine Asteraceae from the Andean region of South America have revealed the following apparently undescribed species of *Vernonia* from Ecuador and Peru. The material reviewed also contained two collections from the Province of Sandia in Puno, Peru (Vargas 11825, 11856) that are superficially similar to various species of *Vernonia* subg. *Critoniopsis*. The two specimens prove to be the species named *Vanillosmopsis weberbaueri* Hieron. Closer examination shows a pappus of setae in more than one series without a distinct outer pappus. As such, the species is not reasonably included in *Vernonia*, but nevertheless, it will eventually probably have to be removed from the genus *Vanillosmopsis*, which is otherwise known only from Brasil, and which differs in pubescence-type and floral details.

The new species are as follows.

VERNONIA FERREYRAE H. Robinson, sp. nov.

Plantae fruticosae ca. 1 m altae multo ramosae. Caules teretes leniter striati dense pruinoso-puberuli, pilis T-formibus. Folia alterna, petiolis 2-3 mm longis; laminae ovatae vel anguste ovatae plerumque 1.5-3.5 cm longae et 0.8-1.5 cm latae base rotundatae vel breviter obtusae margine integrae vel sub-integrae apice acutae vel breviter acutae supra leniter bullatae glabrescentes sensim lucidae glandulo-punctatae subtus dense pallide tomentosae, nervis subtus prominentibus, nervis secundariis utrinque ca. 4-5 ascendenter arcuatis. Inflorescentiae in ramis terminales corymboso-paniculatae, ramis ascendentibus dense pallide tomentosae, ramulis in partibus sulcatis ultimis 1-12 mm longis, bracteis inferioribus et secundariis foliiformibus 0.6-1.2 cm longis et 0.3-0.6 cm latis, bracteis ultimis minutis subulatis. Capitula in ramulis subdense corymbosa late campanulata ca. 7 mm alta et ca. 5-8 mm lata; squamae involucri fulvescentes vel purpurascens ca. 38 ca. 5-seriatae erectae apice leniter recurvatae anguste ovatae 1.0-3.5 mm longae et 0.5-1.2 mm latae apice acutae minute apiculatae margine anguste scariosae saepe pallidae extus sparse evanescentiter tomentellae superne ad medio dense glandulo-punctatae longitudinaliter atro-viridescens iter vel atro-purpurascens iter univittatae. Flores ca. 25 in capitulo. Corollae lavandulae ca. 8 mm longae, tubis anguste cylindraceis ca. 4.0-4.5 mm longis extus sparse minute glandul-

iferis, faucibus leniter infundibularibus ca. 1 mm longis, lobis linearibus ca. 2.5-2.8 mm longis et 0.4 mm latis inferne sparse minute glanduliferis subapicem dense glandulo-punctatis et breviter contorte setiferis, setis uniseriatis in cellulis apicalibus ca. 0.15 mm longis; thecae antherarum 2 mm longae; appendices antherarum oblongo-ovatae ca. 0.5 mm longae et 0.2 mm latae apice obtusae extus glabrae; nodi stylosum annuliformes; scapi stylosum in partibus hispidulis superioribus subnulli; rami stylosum extus longe appresse argute sericeo-papillosum et multo glandulo-punctati, papillis in parietibus incrassatis. Achaenia 1.5-2.0 mm longa dense setifera; carpodia breviter cylindrica lateraliter dense glandulo-punctata; setae pappi ca. 35 ca. 4.5 mm longae superne sensim leniter latiores margine et extus scabridulae, squamae exteriores lanceolatae ca. 1 mm longae extus sublaeves. Grana pollinis in diametro ca. 45 μ m valde regulariter lophorata, cristis minute multo spinuliferis, spinis majoribus nullis (reticulation *V. cognata* type).

TYPE: PERU: Cuzco: Prov. Anta. Waironka? alt. 2000 m. 18 Dec. 1966. *C. Vargas C. 17905* (Holotype US). PARATYPES: PERU: Apurimac: Prov. Abancay. Just west of Río Apurimac near bridge over a small stream, km 84 east of Abancay. Alt. 2200 m. Shrub to 1 m tall; flowers purple. 3 Nov. 1957. *P.C. Hutchison 1748* (US); Cuzco: km 96-97 Highway Cuzco-Abancay, near Puente Cunyac. Habitat stony. Alt. 1900-2000 m. Flores white. Nov. 20, 1947. *Ramon Ferreyra 2744* (US); Puente de Cunyac. Flores azules. 8/7 1948. *Velarde 1390* (US).

Vernonia ferreyrae seems closest to *V. mandonii* Sch.Bip. ex Gleason of Bolivia, but the latter has broader leaves with more numerous more insculptate secondary veins, has somewhat larger heads sessile in pairs or small clusters, and has attenuate tips on the involucre bracts. *Vernonia mandonii* has pollen reticulation of the *V. cognata* type with a polar areole and two series of intercolpar areoles as in *V. ferreyrae*, but the Bolivian species lacks the glands on the upper surfaces of the carpodium.

VERNONIA RETROSETOSA H. Robinson, sp. nov.

Plantae frutescentes vel subscandentes mediocriter ramosae. Caules virides vel brunnescentes teretes irregulariter leniter striati dense longe subretorse flavo-pilosi. Folia alterna, petiolis distinctis brevibus ca. 3-5 mm longis dense sericeo-pilosis; laminae ovatae plerumque 5-7 cm longae et 2.5-3.3 cm latae base rotundatae margine utrinque remote 5-7-mucronato-serrulatae apice breviter argute acuminatae supra et subtus longe sericeo-pilosae non glandulo-punctatae in nervis et nervulis prominulae in nervis primariis inferne dense retrorse sericeo-pilosae, nervis secundariis utrinque plerumque 4-5 patentibus arcuatis sensim ascendentes. Inflorescentiae paucae ramosae, ramis in nodis distincte leniter deflectis dense subretorse flavo-sericeo-pilosis, bracteis foliiformibus plerumque 1.5-5.5 cm longis et 0.6-2.2 cm latis. Capitula remota uniseriata

sessilia axillaris late campanulata ca. 10 mm alta et 7 mm lata; squamae involucri exteriores virides ca. 30-35 multiseriatae distincte patentis aristiformes 5-9 mm longae sparse sericeo-pilosae superne extus pallide uni-costatae, squamae interiores ca. 12 anguste lanceolatae ca. 7.5 mm longae inferne pallidae ca. 1.3 mm latae apice anguste acutae extus superne viridescentes et sericeo-pilosae. Flores ca. 25 in capitulo. Corollae albae? ca. 8 mm longae, tubis perangustatis ca. 5 mm longis extus glabris, faucibus subnullis ca. 0.1 mm longis, lobis linearibus ca. 3.5 mm longis et 0.6 mm latis inferne glabris ad apicem dense stipitato-glanduliferis et pauca spiculiferis; thecae antherarum ca. 2 mm longae; appendices antherarum anguste ovatae ca. 0.35 mm longae et 0.17 mm latae glabrae; nodi stylorum annuliformes; scapi stylorum in partibus hispidulis superioribus ca. 0.4 mm longi. Achaenia ca. 1.5 mm longa dense setifera; carpodia rotundato-obturaculiformia in superficie superiore setifera; setae pappi subsistentes ca. 55-60 ca. 5 mm longae superne sensim latiores margine et extus scabridulae, squamae exteriores oblongo-lanceolatae ca. 0.8 mm longae extus plerumque laeves. Grana pollinis in diametro ca. 50 μ m valde lophorata, cristis minute multo spinuliferis, spinis majoribus nullis (reticulation *V. geminata* type).

TYPE: PERU: Puno: Prov. Sandia, bajando de Valle Grande. Habitat bosque ralo. Alt. 2000 m. 7 Agosto 1957. *C. Vargas C. 11844* (Holotype US).

Vernonia retrosetosa is named after the distinctive form of pubescence on the stems. The stiff yellowish hairs are directed backward and curve outward, forming a brush around the slender stems. The pollen of the new species has colpar areoles which touch at the poles and has two intercolpar rows, a condition seen in *V. geminata* Less. and its close relatives in Brasil.

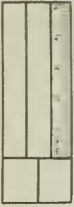
VERNONIA VIOLICEPS H. Robinson, sp. nov.

Plantae fruticosae vel subscandentes ad 2 m altae. Caules teretes leniter striati dense sordide velutini. Folia alterna, petiolis 5-7 mm longis; laminae ovato-lanceolatae plerumque 9-12 cm longae et 3.0-4.5 cm latae base rotundatae vel obtusae margine integrae vel subintegrae anguste recurvatae apice breviter argute acuminatae supra persparse strigulosae in nervis primariis prominentes pilosae in nervis secundariis prominulae subtus appresse sericeo-puberulae in nervis et nervulis prominulae, nervis secundariis utrinque ca. 7 ascendenter arcuatis. Inflorescentiae in ramis terminales multo ramosae, ramis dense sordido-velutinis, bracteis inferioribus paucis foliiformibus plerumque 3.0-4.5 cm longis et 1.0-1.5 cm latis, bracteis superioribus et ramulosis minoribus plerumque ca. 1 cm longis et ad 0.4 cm latis facile deciduis, ramulis interdum in nodis leniter deflectis. Capitula in seriebus solitaria vel geminata sessilia ad 12 mm alta et plerumque 3-4 mm lata; squamae involucri exteriores lavandulae ca. 30-35 ca. 4-seriatae erecto-

patentes vel subappresse anguste lanceolatae pungentes 1.5-5.5 mm longae et ca. 0.5-1.0 mm latae margine sparse pilosae extus albo-sericeae, squamae interiores ca. 9 oblongo-lanceolatae superne late scariosae apice breviter abrupte acuminatae extus praeter marginem albo-sericeae. Flores 10-12 in capitulo. Corollae lavandulae ca. 7.5 mm longae, tubis anguste infundibularibus ca. 4 mm longis extus glabris, faucibus ad 1.5 mm longis infundibularibus glabris, lobis lanceolatis 2.0-2.3 mm longis inferne 0.5 mm latis extus superne dense setiferis; thecae antherarum ca. 2 mm longae; appendices antherarum anguste ovatae ca. 0.5 mm longae et 0.2 mm latae glabrae apice subacutae crenulatae; nodi stylorum annuliformes; scapi stylorum in partibus hispidulis superioribus ca. 0.5 mm longi. Achaenia ad 2.2 mm longa dense setifera; carpodia rotundato-obturaculiformia in superficie superiore setifera; setae pappi subpersistentes ca. 45 plerumque ca. 5 mm longae superne sensim latiores margine et extus scabridulae, squamae exteriores lanceolatae plerumque 1.0-1.3 mm longae extus laeves. Grana pollinis leniter oblata ca. 45 μ m alta et 50 μ m lata valde lophorata, cristis minute spinuliferis, spinis majoribus nullis (reticulation with 1-3 polar areoles and 3 rows of intercolpar areoles).

TYPE: ECUADOR: Tungurahua: along the road to Puyo, ca. 2 kms E of Río Negro. Elev. ca. 4300 ft. Several plants, ca. 2 meters tall, shaded areas, phyllaries lavender. Jan. 21, 1974. *R.M. King 6558* (Holotype US). PARATYPE: ECUADOR: Tungurahua: Road Baños-Mera, 35 km from Baños. Clearing and rain forest along line from Television Plant to antenna (along Río Cashaurco). Alt. 1450-1550 m. (78 10'W 1 25'S). Scandent shrub. Flowers violet. Sep. 4, 1976. *B. Øllgaard & H. Balslev 9301* (US).

In general aspect and number of flowers in the heads, the new species seems closest to *V. ehretiaefolia* Benth. of Venezuela, Guiana and northern Brasil, and *V. sclareaefolia* Sch.Bip. of Colombia. The first of these is closer in leaf texture and blade pubescence and in its differentiated outer involucre, but it has more elliptical leaves with narrower bases and has more crowded heads on less deflected branches of the inflorescence. The Colombian species has larger heads without differentiated outer bracts, and has leaves with more roughened upper surfaces, densely tomentellous undersurfaces, and acute bases of the blade. Both specimens of the new species have violet involucre bracts, a feature not seen in the related species.



HERBARIO VARGAS, CUZCO, PERU
PLANTAE PERUVIANAE

Vernonia ferreyrae H. Robinson Holotype
VARGAS 1965 15 de Octubre 1965

Departamento Arequipa Provincia Arequipa

Localidad cañón de Arequipa
Altitud 2000 m. habitar

Determinado

Material: holotype

UNITED STATES
2575402 A

NATIONAL HERBARIUM

Vernonia ferreyrae H. Robinson, Holotype, United States National Herbarium. Photos by Victor E. Krantz, Staff Photographer, National Museum of Natural History.



HERBARIO VARGAS (CZ) P. I. B. P.
 PLANTAE PERUVIANAE
Vernonia retrosetosa H. Robinson

2575403 A

NATIONAL HERBARIUM

Vernonia retrosetosa H. Robinson, Holotype, United States National Herbarium.



PLANTS OF ECUADOR

ROBERT MERRILL KING

Vernonia violiceps H. Robinson
unpubl. material in the U.S. National Herbarium

UNITED STATES

2733055

NATIONAL HERBARIUM

P. ...
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 A. ...
 P. ...

Vernonia violiceps H. Robinson, Holotype, United States National Herbarium.



Vernonia enlargements of heads. Top. *V. ferreyrae*. Middle. *V. retrosetosa*. Bottom. *V. violiceps*.